STATE OF MINNESOTA DISTRICT COURT

COUNTY OF RAMSEY SECOND JUDICIAL DISTRICT

- - - - - - - - - - - - - - - -

Neil Humphreys, Lona Jensen, individually and as husband and wife,

Plaintiffs,

vs.

Owens-Illinois, Inc.,

Defendant.

- - - - - - - - - - - - - - - -

File No. 62-CV-13-7709

VOLUME XVII

OCTOBER 17, 2014
MORNING SESSION

The above-entitled matter came duly on for jury trial before the Honorable John H. Guthmann, Judge of District Court, on the 17th day of October 2014, at the Ramsey County Courthouse, 15 West Kellogg Boulevard, St. Paul, Minnesota.

A P P E A R A N C E S

Patrick DeBlase, Esq., Curtis M. Glaccum, Esq., and Michael R. Strom, Esq., appeared for and on behalf of the Plaintiffs.

Patrick T. Tierney, Esq. and John D. Cosmich, Esq., appeared for and on behalf of the Owens-Illionis, Inc.

Kathleen M. Conlee - Court Reporter

I N D E X

(Whereupon, the following proceedings were duly had outside the presence of the jury on October 17, 2014 at approximately 9:03 a.m.)

THE COURT: Everyone ready to go?

MR. DE BLASE: Yes, Your Honor.

MR. COSMICH: Yes, Your Honor.

MR. TIERNEY: Ready to go home.

THE COURT: I didn't finish the sentence, I'm sorry. A couple things I want to put on the record: One, I had requested the plaintiffs to mark and offer the Lona Jensen deposition as it was presented to the jury so we have an actual transcript in addition to the thumb drive, so let's take care of that sometime today.

The other thing I wanted to do was put on the record the side-bar discussion we had late yesterday with regard to the EPA document that was discussed by Dr. Gregory and Mr. Cosmich in connection with the issue of the definition of toxic. The court's ruling permitting the questioning was based upon qualification of the document as a learned treatise as an exception to the hearsay rule. It's also a type of state-of-the-art argument that the terminology of the time was part of the state-of-the-art in the industry at the time, or in

industry at the time, and for those two reasons, the objection was overruled. And if anyone wants to put anything else on the record to supplement that, they may.

MR. COSMICH: Only that it was also defense's position it was a government publication but we also -- the court was not convinced of that, I think.

THE COURT: Well, I don't recall that coming up as a separate exception to the hearsay rule, but --

MR. DE BLASE: Well, it's my understanding, Your Honor, that when we're talking about state-of-the-art notice, if you will, we're not offering documents for the truth of the matter asserted, so therefore it's substantive nonhearsay, all the state-of-the-art stuff. But when we're talking postexposure, 1958 and beyond, and we're talking about other issues like causation or other opinions, well, that's something that has to come in through an expert. It can't come in through documents submitted, shown to the jury and admitted into evidence. That is still hearsay. I cannot cross-examine a document. A learned treatise isn't necessarily admitted as evidence. I mean --

THE COURT: A learned treatise can be shown to the jury. This particular document wasn't admitted as evidence as an exhibit, but the contents of the document were shared with the jury, which is exactly what the hearsay exception talks about. In addition, the fact that the document is dated after the events doesn't mean that it's not relevant to the issue of state-of-the-art. In fact, the document itself was describing the state-of-the-art in a previous era, which is exactly why it was relevant to the point that was being made by the defense.

MR. DE BLASE: Sure. And that's, if you will, Your Honor, the opinion of that document after the time. In other words, somebody during the time period opening up a document necessarily has the document to look at. Postexposure time, 1958 and beyond, well, that's, you know, if somebody's commenting on what was known or knowable before that time, that's subject to cross-examination. One cannot cross-examine a document that's produced later and talking about things that happened in the past.

THE COURT: It was a learned treatise relied upon by the expert who formed an opinion.

MR. DE BLASE: I understand the court's position.

THE COURT: And I think the plaintiff has been doing that throughout the case. And I just wanted to make a record of our side bar because it wasn't on the record.

MR. DE BLASE: Sure. But just for the record, Your Honor, just so the record is complete, I don't believe I have shown the jury any documents post-1958, certainly not over objection in this trial. I don't think I've shown, I mean, other than things that have been agreed on, like the Social Security records. I mean --

THE COURT: There have been all kinds of treatises postdating 1958 that have been put in for purposes of the state-of-the-art, and this document is in that same category.

MR. DE BLASE: Right. I've never shown the contents of those books, Your Honor. I've only shown what, you know, that they are books and that the state-of-the-art is contained therein, and that is the basis of the chapter -- Dr. Lemen wrote the state-of-the-art chapter and the epidemiology chapter in the asbestos book, but I didn't crack it open and start going through --

THE COURT: No, but the contents were shared with the jury. If you paraphrase the contents

or quote the contents, that isn't any different than putting it on the screen.

MR. DE BLASE: Understood, Your Honor, but that's not what Dr. Lemen did. He testified as to his opinions in the case, and his bases are the articles that are contained in the books and treatises. Thank you.

THE COURT: Okay.

MR. STROM: Your Honor, the other point that we made at the time -- and you've made your ruling, the evidence has come in, it's purely for the record -- is that we objected that EPA document reporting a problem with a landfill full of asbestos superfund site does not qualify as a learned treatise at all. It's simply a publication by the EPA discussing something that happened. It was in -- somewhat akin to a newspaper article discussing what had happened. It just happened to be on EPA letterhead. It also was not a document discussing the definition of toxic or what it meant. It was simply an offhand comment, and it also referred to, I mean, not coincidentally, to 1972 when the EPA and the government agencies started regulating asbestos, which they hadn't done before.

So it was very misleading when they're

saying toxic, nontoxic. They're talking about whether or not something's regulated or not regulated, and their inability to cross-examine on that particular point was I think part of the problem.

THE COURT: Well, you will have your chance to cross-examine the witness who formed the opinion and the strength and weight to be given to this particular resource that he used in forming that opinion. I gave the plaintiff the opportunity to cross-examine Dr. Gregory before it was put up on the screen, and that opportunity was passed upon. You still can cross-examine him because the direct examination is taking place.

Your characterizations of the document are rather hollow. They just go to the weight in light of the fact that there's unopposed testimony from Dr. Gregory that it's a learned treatise and Rule 803(18) allows the statements to be read into the, read into evidence but not admitted as exhibits. That's exactly what happened. And that's treating it as an exception to the hearsay rule. If it's treated as state-of-the-art as Mr. DeBlase suggests, not that he agrees with this characterization, but as he properly suggests, if it's state-of-the-art, that goes to

notice and not to truth of the matter asserted. It's not hearsay at all. So for those two reasons, I permitted the defense to proceed.

MR. STROM: We understand the court's ruling and we're ready to move on. Thank you.

THE COURT: Okay. Let's bring in the jury.

(Whereupon, the following proceedings were duly had in open court in the presence of the jury:)

THE COURT: Good morning. Have a seat. Dr. Gregory, you can come back and resume your seat.

Mr. Cosmich, you can continue with your direct exam.

MR. COSMICH: Thank you, Your Honor.

CONTINUED DIRECT EXAMINATION

BY MR. COSMICH:

Q Good morning, Dr. Gregory.

A Good morning.

Q When we left off yesterday we had been talking about dose and toxicity. Do you recall that?

A Yes.

Q Where I want to go now is back to the concept of a threshold limit value briefly, okay?

A Yes.

Q At any point did the ACGIH or any other entity ever have a separate TLV for asbestosis and cancer?

A No, they did not.
Q Some mention has been made about suggestions by a Dr. Stockinger about a safety factor. Are you aware of discussions with respect to a safety factor?
A Yes, I am.
Q Do you know Dr. Stockinger?
A Yes, Dr. Stockinger was a guest lecturer at the University of Cincinnati while I was there working on my master's degree in industrial hygiene. In fact, he worked across the town of Cincinnati at the Public Health Service. At that time it was called the National Institute of Occupational Safety and Health, or NIOSH.
Q At any point are you ever aware of Dr. Stockinger suggesting a safety factor or a lowering, or a different level of TLV for asbestos?
A No.
Q Are you aware of publications by the American Industrial Hygiene Association called Quarterly Reports?
A Yes.
Q Are those the types of materials that hygienists such as yourself would rely upon and read?
A Yes.
Q Would you consider them to be authoritative?

A Yes.
Q If there were writings by Dr. Stockinger and such at issue, would that be authoritative and something that would be relied upon by folks such as yourself out in the field?
A Certainly, yes.
Q Are you aware of the publication by Dr. Stockinger in the American Industrial Hygiene Association's Quarterly Report in September of 1956?
A Yes, I am.

MR. DE BLASE: Your Honor, may I have an opportunity -- I object. I haven't seen this. I'd like to see it. It hasn't been shown to me.

MR. COSMICH: It's literature just like you mentioned.

THE COURT: Okay, take a look at it.

MR. DE BLASE: I have it. It's fine; go ahead.

THE COURT: Proceed.

BY MR. COSMICH:
Q Do you recall Dr. Stockinger specifically writing about his view of asbestos and cancer in that report?
A Yes, I do.
Q You know, on page 342 Dr. Stockinger talks about Dr. Doll, there's been a lot of discussion about Dr.

Doll?
A Correct.
Q This is 1956, right after Dr. Doll's publication comes out, correct?
A Correct.
Q Dr. Stockinger goes on to say: With such relatively small numbers of cases, one must be extremely cautious in drawing the conclusion of a causal relationship between exposure and the disease.

Do you recall reading that?
A Yes.
Q Further, the question to resolve then in the asbestos exposures is whether a tenfold greater incidence of lung cancer is large enough to be significant when dealing with small samples of this sort. Before a final decision is reached it would seem well to wait until a more impressive number of cases has been documented.

What is your interpretation of what Dr. Stockinger is telling us there?
A Well, basically he's stating there's not enough scientific evidence to conclusively conclude that asbestos results in an increased rate of lung cancer among exposed workers at that time. That was the state-of-the-art of thinking during that time period.

Q And he goes on. We won't read it all, but toward the end he refers to asbestos as a fibrous form of mineral?
A Correct.
Q And the ACGIH, as we established before when they had the threshold limit values, categorized asbestos as a mineral dust as opposed to a toxic dust, correct?
A That's correct.
Q Is there any indication from Dr. Stockinger's writing in 1956 that would indicate to you that he was recommending a safety factor for asbestos with respect to the TLV?
A No, he was not recommending one at that time.
Q Some mention was also made about a publication by the Manufacturing Chemists Association. Do you recall reading about that before?
A Yes.
Q And are you familiar with that publication?
A Yes.
Q And whether or not warnings for certain products should be issued?
A Correct.
Q Do you recall that?
A I sure do.
Q Was asbestos ever included in that recommendation or

that association's publication?
A No, it was not.
Q But they did suggest a lot of warnings for other types of materials that were carcinogens, correct?
A That's correct.
Q I want to move to another area. We've talked a lot about the types of controls that were known about or knowable in the field of industrial hygiene for controlling dust, okay? What types of controls would have been known about in the 1950s at a work site to control dust?
A Well, basically they fall into three categories: Engineering controls, which involves the use of ventilation to remove contaminated air away from the employees' breathing zone or the area that the employees are working. So engineering controls, and there's various other types of engineering controls, but ventilation is the primary one.

The other category is called work practice or administrative controls where you use methods such as wetting down a material to prevent it from becoming airborne, or you reduce the time that you're working with the material so that your exposure duration is not as long. So administrative controls vary, and there's many different types of them.

And then the other major category includes personal protective equipment which is the wearing of respirators or respiratory devices, either reusable respirators or dust masks, disposable respirators that filter out the fibers or the dust as you're working and breathing in that particular area.

Q And these are all controls that were state-of-the-art in the 1950s?

A Yes.

Q And had been written about -- we're not going to rehash it -- but since Merewether, et al. in the 1930s?

A Yes, they even go back farther than that, yes.

Q And published by industrial hygienists like Dr. Brandt and others in authoritative journals?

A Yes.

Q And written about in industrial hygiene Quarterly Reports?

A Correct.

Q With respect to dust at a work site, in order to know whether or not the dust is approaching a threshold limit or a certain exposure level, how do you find that out?

A You have to do industrial hygiene air monitoring using a device similar to what I described to the

jury yesterday where you have a filter or an impinger. In the old days they used impingers, which is nothing more than a little flask that you bubble air through a water solution. But the new technology in the late '60s was the filter that you attached to the lapel to represent the employee's breathing zone, and you connect that to a battery-powered pump that then draws air through that filter, and all of the dust and the fibers collect on that filter. And then that is analyzed and counted by people who are analytical chemists or those who are trained in counting asbestos fibers.

Q Was there a mechanism to do that in the 1950s?

A Oh, yes.

Q Also written about in a lot of journals that were discussed in this case?

A Oh, yes.

Q In your opinion, should employers provide a safe place to work?

A Oh, yes. There's no question about it. When you hire an employee you take full responsibility because you are the one that is paying for their labor, but you're not paying for them to get hurt or to suffer any overexposures. All you are entitled to is their labor. When they leave you at the end of that day

you pay them, but they shouldn't be taking in excessive amounts of chemicals home in their body that are going to result in adverse health effects.

And the employer is the one that has the total control over the workplace. They hire the people. They control the people. They control the material. They control the exposure conditions. They control the work practices. They control the procedures. They have total control over their employees. Only employers have not only the control but the ability and the resources to prevent overexposure to their employees.

Q You talk about the particular work practices and controls. Why are those important in how much exposure would occur at a work site in the 1950s, or with asbestos, with asbestos?

A Yes. Those controls are the only effective ways of reducing an employee's exposure to asbestos or any other chemical. And the employer is the one that has the ability to implement and require the use of those controls, and to monitor and police those controls to make sure that they remain effective while the employee is performing his or her job.

Q And do the work practices, how the products are handled, affect how much dust may be in a given

application?
A Oh, definitely. All of those controls, the engineering controls, the administrative or work practice controls and respiratory controls, reduce exposures that the employee will receive while performing their job.
Q In any work site such as was described by Mr. Humphreys, there are a lot of different hazardous materials?
A Yes.
Q And this control doesn't just relate to asbestos, it would be for everything, correct?
A Exactly, everything that's potentially hazardous.
Q Should an employer who is conducting a certain activity or a subcontractor of a specialized field, should they know about the hazards associated with the type of work that they're holding themselves out to do?
A Yes, they should. As an employer you take that responsibility when you hire people to perform a task. You take that responsibility of knowing what they're doing, what they're working with, and what the potential health effects of those particular products are going to be so that you can make sure they're not overexposed and suffer adverse health

effects.

Q And Dr. Gregory, from an industrial-hygiene perspective, does this responsibility to provide a safe workplace and protect workers depend on the size of the employer?

A No. The engineering, administrative and personal protective equipment controls are controls that every employer has available to them, whether they have one employee or thousands of employees, so they're available and always have been available to employees.

Q Is that a concept that OSHA applies even today?

A Yes, when OSHA passed their Occupational Safety Act of 1970, it made it very clear that it was the employer's responsibility to protect each and every employee.

Q Dr. Gregory, I want to show you one more exhibit that's been entered into evidence.

MR. COSMICH: May I approach, Your Honor?

THE COURT: You may.

BY MR. COSMICH:

Q Dr. Gregory, I have Exhibit 15. It's been entered into evidence. It's the specifications from the work site. Are you familiar with that?

A Yes, I am.

Q I want to turn to one of the provisions and see if this is consistent with what you're talking about. I don't know if you can read it there. Under section E, labor: The insulation contractor shall furnish all necessary labor to perform properly the work covered by these specifications. He shall adopt all precautions to prevent injury to persons and property. Did I read that correctly?

A Yes, you did.

Q What type of precautions to protect injury to persons would be available to the insulation subcontractor in the summer of 1957 when this contract was going on?

A All the engineering work practice, administrative and personal protective equipment controls that I've previously discussed were available at that time.

Q And from your review of Mr. Humphreys' testimony and the depositions, are you aware of whether or not Mr. Humphreys' employer instituted any of those controls?

A There was no evidence that any of those controls were used during the time period that Mr. Humphreys worked at that power plant during the summer of '57.

MR. COSMICH: Your Honor, those are all the questions I have.

THE COURT: All right. Cross-examination.

MR. DE BLASE: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. DE BLASE:

Q Good morning, Dr. Gregory. How are you?

A Good. Good morning, and I'm great, thank you.

Q Let's start where we left off. All right, give the projector some time to warm up.

The article, Industrial Hygiene Quarterly, you were shown that on direct just now?

A Yes.

Q That was -- this is by Stockinger commenting on the Dr. Doll article, 1955, right?

A That's correct.

Q And something we didn't read was the article by Cartier above that section, right? We heard about Cartier from Dr. Lemen in this trial as writing a paper concerning asbestos in cancer. Are you familiar with that paper?

A No, I'm not.

Q Well, let's read what it says here: Cartier studying over a nine-year period involving 4,000 asbestos miners in Canada, involving 128 cases of asbestosis, 40 of them with autopsies, found six of these have bronchogenic carcinoma. Seven cases of lung cancer were found among asbestos miners with no asbestosis.

There's been some talk in this trial about asbestosis being needed to have lung cancer. Is this an indication to you as an industrial hygienist as a professional in safety and industrial engineering, that Cartier's reporting there's this question about having lung cancer without having asbestosis?

A I'm not familiar with that particular study, but just because you have lung cancer without asbestosis doesn't mean that it was caused by asbestos or exposure. So I'd have to see the whole study, because when you're doing an epidemiological study -- and I'm not sure that that even qualifies as an epidemiological study -- but you have to rule out other potential causes of lung cancer, for example, the most prevalent cause, cigarette smoking, so --

Q Doctor Lemen has testified in this case that it is an epidemiological study. Do you know Dr. Lemen?

A Yes.

Q He's an epidemiologist, right?

A Yes.

Q Okay. Would he be the best person to tell us in this trial as to whether or not that study was an epidemiology study?

A If he accepts it as a valid and scientifically performed epidemiological study, then I would accept

that, but as far as your conclusion, I wouldn't accept that.

Q I'm not asking you to accept anything that I say.

A Right, right.

Q But let's talk about it. In 1956 this researcher Stockinger is reporting something that Cartier has reported, right?

A Right.

Q And the implication is well, maybe we could have lesser -- let's start with this: In order to have asbestosis you need significant exposures to asbestos, right?

A That's correct.

Q And the thinking is maybe you don't need those sorts of significant exposures to asbestos to get lung cancer; is that the implication by that sentence?

A That indicates there's a possibility of that and it requires more epidemiological studies to prove one way or the other. At that point it's not conclusive though, which is what Dr. Stockinger indicated.

Q Okay. It's not for sure at this point, right?

A That's right.

Q Okay. All right. As an industrial hygienist, you want to be absolutely positive of things before you expose workers to industrial carcinogens?

A You want to have conclusive information in order to establish the TLV values.
Q And if you don't have those conclusive information but you have strong suspicions, it's okay to expose workers to carcinogens?
A Well, first of all, you have to have conclusive information that it is or is not a carcinogen. We found out later that it definitely was a carcinogen but that was later, you know, after the 1955 and a few studies after that, many of them with Selikoff and Chris Wagner. But you establish a TLV based on the best available scientific information, and the people who reviewed that information were governmental industrial hygienists with no ties to private industry. Their only concern was the American worker and making sure that that American worker was not overexposed to a material that was going to result in cancer or asbestosis.
Q Let's get back to something you just said, and that is that as of 1955, is it your testimony that asbestos has not been conclusively proven to cause cancer?
A In 1955, with the Richard Doll study, that's recognized as the first epidemiological study that concluded that overexposure to asbestos resulted in

an increased risk of lung cancer among the employees who were exposed to asbestos.

Q So as of 1955 we can consider asbestos a carcinogen, yes or no?

A It was considered at that time a carcinogen based on that study, although there was still a lot of doubt, still many people felt you had to have asbestosis to develop cancer. And, you know, those were the people who were the leaders in the world as far as their knowledge of asbestos. For example, Selikoff, for example, stated in as late as 1972 that before 1960 there was uncertain and tenuous information as far as whether asbestos was a --

MR. COSMICH: Objection, Your Honor.

THE COURT: Overruled.

BY MR. DE BLASE:

Q Let's get back and start at the beginning, okay, Dr. Gregory? You have mentioned I think -- maybe you didn't. Have you published anything on asbestos?

A Nothing particular on asbestos, that's correct.

Q How about anything generally?

A Yes, I have, generally.

Q Tell us?

A Well, they're management of safety and health programs. I published two management articles on how

to use techniques to prevent overexposure to chemicals and occupational injury, so they're just basically indicating to management what management has to do to prevent occupational diseases and occupational injuries and all those techniques involving engineering and work practice, engineering controls, personal protective equipment, accountability, observations, and a bunch of other additional controls that I've put into those articles on how to make sure that employees are working safely and under safe working conditions.

Q And is that published in the peer-reviewed literature?

A Yes.

Q Where is that?

A American Safety Society, publication called Professional Safety and the American Industrial Hygiene Association Journal.

Q And does the word "asbestos" appear in any of those articles?

A No. I covered all potential health hazards as a group in those articles.

Q But the word "asbestos" appears nowhere in any of those articles?

A No, there was no reason to specify asbestos. The

controls for asbestos are similar to the controls for all other occupation potential health hazards.

Q Your Ph.D. dissertation had nothing to do with asbestos, correct?

A No, it did not.

Q Your master's thesis had nothing to do with asbestos, correct?

A No. They were industrial hygiene monitoring techniques, but they didn't apply specifically to asbestos because those techniques had already been developed for years and years long before I entered my master's degree program or Ph.D. program. They wouldn't have awarded me a master's thesis or a Ph.D. if I had repeated what everyone else had done before me, at least at the University of Cincinnati they wouldn't.

Q The air sampling you did for that dissertation had nothing to do with asbestos, did it?

A That's correct, but I've sampled for asbestos hundreds and hundreds of times.

Q Have you brought with you here today any results of air-sampling testing you've done?

A No. As I indicated, I've sampled for asbestos hundreds of times during my career.

Q We're going to talk a little bit about that today,

but you haven't brought the results of air-sample testing, in other words, the actual fibers per cc here in court today?

A No, most of that would have been government documents that OSHA owned and not me. It would have been illegal for me to have taken those from OSHA, and then the others were owned by the companies that I worked for, and I did not take copies of those as well.

Q And you've never measured the level of asbestos released from a Kaylo product, correct?

A I have measured the removal of various calcium silicate thermal insulation products. I couldn't tell you that it was Kaylo. It could have been one of the other calcium silicate thermal insulation products, because once the product is installed, and then you remove it, of course, you know, there's no Kaylo on the product so -- but with all the sampling that I've done during removal operations where employees have had to remove insulation to repair lines, valves and things like that, it's highly probable that I have sampled during a removal of Kaylo and other types of calcium silicate insulation products.

Q So getting back to my question. You don't know,

you've never actually sampled Kaylo, what you know to be Kaylo, and taken dust measurements from Kaylo, is that right?

A During a removal operation you don't know whether it's Kaylo or Johns Manville or Pabco. I mean, you can identify by its texture in the smoothness and the whiteness that it is a calcium silicate material.

Q They all look about the same?

A The calcium silicates do, yes.

Q And you're talking about tear out or removal of this pipe covering, right?

A Yes.

Q That's your experience with testing?

A That's correct, because by the time I got into the field --

Q And specifically --

THE COURT: Don't interrupt the answer.

THE WITNESS: By the time I got into this profession they were not installing Kaylo or any other type of calcium silicate. Manufacturers stopped manufacturing those products in 1973, and I started in 1974.

BY MR. DE BLASE:

Q Right. So you've never had an opportunity to test anything that was actually installed, right?

A Just during a removal.
Q My question is, you never had an opportunity to test anything that was actually installed, right?
A As far as Kaylo or any other thermal insulation products, that's correct.
Q Thank you.
A I did test other asbestos-containing products that were installed or used but not thermal insulation because, again, it was not being manufactured at that time.
Q Now, you have done in the past, in past cases, this thing called a cumulative dose reconstruction, is that what you call it?
A That's correct.
Q Now, some scientists, or perhaps many scientists, think that that's not a valid contribution to science. Are you familiar with that controversy?
A Yes. It's an estimate in most cases, because typically you don't have enough detailed information on frequency and duration and working environmental conditions to be very accurate. At best you come up with an estimation.
Q So you'll read a person's deposition who has mesothelioma, take down what they have to say about their exposure and come to conclusions as to what

their cumulative dose to asbestos was in their lifetime, that's what you've done in the past?

A Not for their lifetime, just during a particular job where they give me enough information on frequency and duration, that I can make those types of calculations and estimations, you know. As far as lifetime, you're talking about ever since they were a child and exposed to the ambient concentration of asbestos and summer jobs and things like that. Usually -- in fact, I can't think of any case where I've ever had that kind of detailed information, where I could come up with quantitative results on a person's total lifetime exposure that I could say is scientifically reliable or at least has scientific certainty.

Q Background exposures or ambient exposures to asbestos, would you agree that those do not increase one's risk of getting mesothelioma?

A Well, it depends. If someone lives in an environment where those levels are relatively high, it certainly increases their overall cumulative dose of exposure.

Q Let's talk -- well, you're talking about if somebody lives near an asbestos mine, right?

A No. I mean, it could be in an urban area where there was a lot of mobile traffic with the braking of cars

and use of clutches where you get some asbestos from brake materials, clutch materials, or they could be in a school room where there's a deteriorated fireproofing material or soundproofing material where asbestos fibers are being released into the air, or the ventilation system was sprayed with a fireproofing or soundproofing material and that's deteriorated with time and those fibers are being blown out into the classroom, or in their home.

I mean, asbestos was a material that was used for everything from coats to diapers, to tissues, to dish towels, to mattresses, and there's just -- asbestos was everywhere in those days. And there was all types of potential exposures in the house as well as outside the house and in the ambient environment, in your school rooms and other places.

Q Dr. Gregory, I'm talking about ambient exposures to asbestos. You're familiar with that term, ambient, right?

A Yes, ambient means around us.

Q Okay. Well, when used and discussed in scientific literature when it relates to asbestos, it doesn't mean somebody who's sitting next to their couch that might have asbestos in it, it doesn't mean somebody who's in a classroom breathing in asbestos from a

ceiling, right, it doesn't mean that, does it?
A Ambient means outside or inside. It means the environment that surrounds you. Typically when they talk about ambient levels they're talking about ambient environmental levels outside of a building, in other words, out in the open spaces.
Q Away from a point source of asbestos, right, something we can identify as being asbestos as being given off by that?
A Well, you can't usually say point source because some rock formations contain naturally occurring asbestos. When the wind blows or when there's some construction activity, those fibers can be released into the air. So ambient environmental just means what's in the outdoor environment at that particular point in time.
Q So would you agree with me that it has nothing to do with a point source of asbestos; in other words, we can talk urban areas, and there have been studies on urban background levels of asbestos, right?
A Yes.
Q Okay. And those background levels of asbestos have been quantified, have they not?
A In certain areas but in very few.
Q Yeah, okay. And that's what I'm talking about when I talk about ambient. Is that what you're talking

about, you're including these other things like inside a school?

A No. If you want to say ambient outdoors, then we can agree that that's outside of any building or any structure.

Q Okay. But I mean, it could include somebody who lives next to an asbestos mine and then we're not talking about ambient then, are we?

A Yes, you are, because you're outdoors and that asbestos mine or asbestos manufacturing plant is releasing asbestos fibers into the outdoors. They have to come from somewhere.

Q Understood. They certainly didn't happen naturally.

A No, they can happen naturally from the ground.

Q They can. And so that happens when it happens from a natural outcropping in the ground, right?

A Correct.

Q And it can also happen if somebody's in a neighborhood, say, in London there have been papers about this, a London neighborhood, people getting mesothelioma from just living in their own home but there's a factory nearby, right?

A Or a high-traffic area, sure.

Q High-traffic area, what are you talking about?

A Where you use brakes that contain asbestos.

Q Let's talk about that, the brakes. Tell me about this brake study that you know of where there has been a documented increased risk of mesothelioma from living near an area where there's a lot of brakes?

A Well, there's nothing that specific showing an increased risk. It just shows an increased exposure to anyone that happens to live or work or pass through that area, but I'm not aware of any scientific publications that have had the information to determine that that particular type of exposure resulted in an increased risk of mesothelioma to any particular population. But it certainly increases the inhalation or the cumulative dose that anyone that might be exposed would have.

Q Okay. All right. So that doesn't increase risk. Does ambient, just being a naturally occurring rock deposit -- in other words, there's no point sources anywhere around you, the levels are very, very low in very rural areas as opposed to being in urban areas, and they have decreased with time as we get away from using asbestos in the 1970s. So getting back to my question. In those areas, just the background that happens to be in those areas, the background on asbestos, is that something that increases one's risk of mesothelioma?

A I think you're asking me a medical question.
Q I'm not actually; I'm asking you about risk. Industrial hygienists talk about risk, do they not? I'm not talking about causation; I'm talking about risk.
A Well, we like to avoid getting into medical issues to determine the cause of mesothelioma and increase the risk of mesothelioma, but there's certainly very low levels that you would find in an urban area today as far as ambient environmental concentration of asbestos.
Q Okay. So getting back to my question. Does ambient, away from a factory, away from a mine, does that increase one's risk of mesothelioma?
A If you're in an area where you have very, very low exposures to asbestos due to -- in the absence of any of those things you're talking about, and you live in that area for your whole life, then it does not increase your risk, in my opinion, as an industrial hygienist, which like I'm indicating to you you're getting into some medical-type questions.
Q I don't want to get into the medicals. I want to stick where your specialty is.
A In my opinion, in an area where the concentrations are very, very low, it does not increase your risk or

at least put you in a category of people that have an increased risk of developing mesothelioma.

Q Now, you said something that caused me a little concern. I want to go over it, this high-traffic area. What is the high-traffic area, and is that something that increases one's risk of getting mesothelioma?

A Well, back in the years before the 1980s when brakes contained asbestos, in a high urban area near stop lights, stop signs and things like that in the city where you had the constant application and releasing of brakes, there have been significant levels of asbestos measured in those areas. Now, fortunately, most of the people braking and going through there or walking through there aren't staying there, so they're not breathing all that in; they're moving away from that, but there have been those studies that have shown significant levels of asbestos in those particular areas.

Q And what kind of levels are we talking about on a fiber per cc basis?

A Oh, it varies from less than .1 up to above one fiber per cc.

Q And what studies do you refer to for that?

A Well, the ones I'm thinking about now are the

California studies.
Q The Baxter studies?
A I don't remember the name of them. There's been a lot of studies done around the country.
Q I've never heard of anything above -- or background for ambient -- above .01 fibers per cc, and you have?
A Well, maybe you've read more industrial hygiene articles and maybe you've been to more presentations that I have.
Q So tell us, what do you have?
A I can't remember the exact publication and whether it was a publication or just a study that was presented at the American Industrial Hygiene Conference.
Q The highest I've heard is .01 by a fellow named Baxter in California, which is significant, is it not?
A It's significant for an ambient concentration, ambient environmental concentration.
Q Would you consider .01 fibers per cc to be something increasing one's risk of getting mesothelioma?
A Well, again, you're getting into a medical question.
Q I'm just talking about risk.
A If you have 24 hours of exposure to that you're exposed at three times what an employee in a workplace would be exposed to, so it would depend on,

you know, how long your exposure to that was and how much of that you were actually absorbing into your lungs, and if it was being retained by your lungs, and what particular type of asbestos it was.

Q Moving away from that, is it your understanding that ambient, other than that Baxter study I talked about, is more along the lines of .00005 fibers per cc?

A The latest that I've seen was published in 1984 and it was .0004 fibers per --

Q Is that from the ATSDR, is that where you got that figure from?

A Yes.

Q And that's a pretty authoritative publication. Tell us what the ATSDR is?

A Well, it's a publication that involves studying various hazardous materials and ambient concentrations of various hazardous materials in the asbestos toxicology profile, is what they're referred to, and they periodically publish their results at various meetings on that, but that was a 1984 study. There's been other studies, even Selikoff did air monitoring in cities -- of course, that was back in the '60s -- and found much higher levels than that which you would expect because asbestos was being used in large volumes throughout the country during

that time period.
Q And when you say much higher, .0000, no -- four now?
A Yes.
Q .0004 is from the ATSDR?
A Right.
Q And when you say it was probably significantly higher in Seilkoff's era in the '60s, you're saying well, let's take a zero off or something like that?
A No, no. See, he reported his in different units, and so it's difficult to convert his into fiber per cc, which you have from that document as fibers per cc. But as I recall, there have been studies where they -- many have reported near some areas in the '70s of .02 fibers per cc converted from some of his studies as well as other studies. But it varies, it varies all over the place, and it depends on whether you're near a factory, near a high-urban area where there's a lot of brake work, the wind directions. It just depends on so many factors.
Q In this case, in Mr. Humphreys' case, is there any indication that ambient played a role in his mesothelioma?
A Well, I don't know what the exposure levels were in the ambient environment that he worked in outside of the power plant where he was a construction worker.

I know there was a lot of concerns involving northern Minnesota during the dumping of --

MR. DE BLASE: Object, Your Honor. This is -- and the subject of a motion in limine. I mean, it's outside the scope.

THE COURT: Just object nonresponsive.

MR. DE BLASE: Nonresponsive.

THE COURT: Sustained.

BY MR. DE BLASE:

Q All right, by the way -- well, let's get back to this. Okay, so in your opinion, ambient did not play a role in Mr. Humphreys' mesothelioma?

A I don't have enough information to say that.

Q Okay. The information that you do have is what you testified to on direct, is that right?

A Yes.

Q He had a substantial exposure to pipe covering, right?

A Based on his testimony, he did have exposures to the use of pipe covering and the use of asbestos-containing insulating cements as well as --

MR. DE BLASE: Your Honor, I move to strike. I'm asking a question.

THE COURT: It's nonresponsive. Sustained.

BY MR. DE BLASE:

Q All right. So the next thing he had exposure to was the mud, he had a substantial exposure to asbestos-containing mud, correct?
A Based on his testimony, that's correct.
Q He also had other exposures in his life, right?
A Yes, he did.
Q And we'll talk about those. Now, your background is, you started with OSHA in 1974, you worked there for seven years, is that right?
A That's correct.
Q And after that seven years you worked for companies, right?
A That's correct.
Q So when you were talking about you were the enforcer, the cop, that's when you were with OSHA?
A That's correct.
Q When you were with the companies though you were being paid by the companies, right?
A That's correct.
Q And you were part of somebody who was in the management of those corporations, right?
A Well, not really management. I, you know, was a staff person who made recommendations to management, I guess is a better way of putting that.
Q And then after your work with companies, that ceased

when?

A In 2012.

Q All right. 2012. And then -- well, before 2012 you were doing some of this asbestos litigation consulting work, right?

A Yes, on a part-time basis, on evenings, weekends, and then I negotiated vacation time with my employers to work on it.

Q And when did that start?

A That happened beginning of 1996.

Q That's when you began testifying for companies, right?

A Yes, very little at that time.

Q And then since 2012, this testifying for defendants has been your exclusive occupation?

A Well, I do other industrial hygiene type of work as well, but most of it is litigation-related work.

Q All right. And you've always worked on behalf of defendants in asbestos cases, right?

A In asbestos cases, all but one.

Q And some of the companies that you have done work for include Owens-Illinois, obviously, right?

A Yes.

Q And you've worked for them on numerous occasions, right?

A Yes.
Q But you've also worked for other companies as well in this asbestos litigation, right?
A That's correct.
Q And some of those other companies are Garlock?
A Pardon?
Q Garlock?
A Yes.
Q Armco?
A Yes.
Q Motion Industries?
A Yes.
Q Ajax?
A Yes.
Q Goodrich and Goodyear?
A Yes.
Q Peters Supply Company?
A Yes.
Q Buffalo Pumps?
A Yes.
Q Gould Pumps?
A Yes.
Q Anybody else?
A American Standard.
Q Okay. Ingersoll Rand Pumps, Bechtel Corporation?

What did Bechtel make?
A Bechtel was a general contractor involved in building the plant that I got involved with.
Q Anybody else?
A Yeah, there were others, but there have been just one or two cases involving -- Insull Company manufactured risers for ingot molds in the steel industry.
Q And in each of these cases, it involved a person who has an asbestos-related disease, right?
A Yes.
Q And in each of those cases, your conclusion was that person did not have enough exposure to that particular defendant's product to have constituted a significant risk, right?
A No, that was not my conclusion at all of those cases.
Q You concluded in some of those cases that the defendant's product did in fact contribute to the disease?
A In some of those cases I was asked to look at all the different products that were used and determine which ones resulted in significant exposures to asbestos, not necessarily the company that I was representing or that the attorneys represented that hired me, but, in other words, to determine whether or not there were other exposures that that employee may have had

at that work site.
Q The Eaton defendant that you worked for, that was work for a company where you were testifying, and that company was actually an employer of somebody who got sick from being exposed to asbestos, right?
A Which company are you talking about?
Q Eaton.
A Oh, Eaton Corporation. Yes, I was representing Eaton Corporation at that point. I was hired by attorneys who were representing Eaton Corporation.
Q And the attorneys were paid by the company that needs the testimony, right?
A Right.
Q And Eaton was an employer of somebody who got sick, right?
A Eaton bought a company, Cutler-Hammer, if that's the case you're talking about. Cutler-Hammer was a manufacturer of electrical switches and components, and Eaton bought Cuttler-Hammer, but it was Cuttler-Hammer that produced the products that the employees used and manufactured, and that resulted in asbestos exposures.
Q Now, you talked about the hierarchy of controls a little bit on direct today. That hierarchy of controls, you don't consider substitution of the

offending material to be in the hierarchy of controls; you consider that to be a separate category all together?

A Well, if you substitute it you don't need to control it; in other words, if you substitute a less hazardous material for a more hazardous material, then you don't have to control it so it eliminates the need for control. But many include substitution as a -- as one of the hierarchies of control, but in my opinion, if you don't have it, you're using something else, then it's not a control; it's a prevention.

Q What materials did Owens-Illinois provide you in this case?

A Well, the depositions that I reviewed, or that I listed yesterday, including the specifications for the combustion engineering boilers that were installed at the power plants. That was the extent of it that I listed yesterday.

Q Well, you didn't list the depositions, and I didn't hear the name. Did you review the deposition of Lloyd Stavich?

A Yes, I did.

Q So you heard his testimony and his use of the Kaylo product at the plant, right?

A Yes, I did.
Q Other than those materials, you've done no other independent research in this case, have you?
A That's correct.
Q Okay. And have you ever asked Owens-Illinois for a piece of their Kaylo? I know it's made many years ago, 1958 they stopped making it?
A Yeah.
Q Have you ever asked them hey, do you guys have any of those Kaylo around and can I test it?
A I wouldn't want to do that.
Q You wouldn't want to do that?
A No, I wouldn't want to do that.
Q Why not?
A Well, number one, you know, it would be 60 years old -- or 50 years old, I guess, if they had at that point, 50 -- well, it's 56 years old, and it's probably going to be fairly dried out, more brittle than it would have been when it was installed prior to 1958, and I can't think of any reason why I would want to test it.
Q Okay. Just clearing up the last topic on substitution. Is substitution, in your mind, from an industrial-hygiene perspective, one of the most important ways to prevent hazards in the workplace?

A Yes. If you're not using a potentially hazardous product, then you've eliminated the need for any kind of controls, assuming that that is a safer product than the product that it's being substituted for.

Q And what -- and that was known in the '30s, '40s and '50s, right, this concept of substitution?

A Well, substitution has always been known. I mean, you select the products that your employees are going to be working with, and, you know, if there's a suitable substituted material that you can use, then yes, substitution's always, as far as I know, been a, something that an employer had available to them. But I don't know if it applied to thermal insulation at that time period because that was what everyone was using. To my knowledge, there was no available suitable substitutes for the type of insulation work that they were doing during that time period.

Q You're not an expert on substitution of materials within products, are you?

A Well, based on what I've read about what was being used during that time period and the other products that were tried during that time period for thermal insulation, the general consensus was that there were no suitable substitutes for asbestos and thermal insulation until the '60s.

Q Thank you.

MR. DE BLASE: May I approach, Your Honor?

THE COURT: You may.

BY MR. DE BLASE:

Q I'm going to hand you some deposition testimony that you've given in the past.

THE COURT: Thank you.

BY MR. DE BLASE:

Q You were asked a question before under oath, do you remember?

A I'll have to look at it.

Q If you're an expert on substitution with respect to asbestos-containing products?

A Yeah.

Q Do you remember being asked that question?

A I don't remember exactly, no. I've been asked a lot of questions.

Q Do you remember saying no, I'm not an expert on substitution of asbestos-containing products?

A I'm not an expert on thermal insulation products and how to manufacture those and which ones you need for any particular type of application, especially in a power plant where the temperatures are usually very high that they're trying to insulate piping with.

Q So the answer is you're not an expert with respect to

substitution in asbestos-containing products, or you are?

A Well, I have knowledge on what was available during that time period based on the depositions that I've read and the publications that I've reviewed, but I'm not an expert on, you know, what was being tested during that time period and then where it was being used and what all the results were.

All I have is what the literature indicated to me, and that was that there were no suitable substitutes found for asbestos until the 1960s as far as for their use in thermal insulation products.

Q All right. Well, we've heard a lot of testimony in this trial; in fact, defendant brought an expert to talk about that in this case. Did you talk to him at all?

A No. Which --

Q Dr. German.

A No, I didn't talk to Dr. German.

Q Were you ever asked to go back and form an opinion in this case about materials, substitute materials, other than asbestos?

A I don't think I --

Q In this case.

A I wasn't asked in this case, no.

Q Have you ever been asked to do that?
A I don't believe I have, no.
Q Did the lawyers give you an agenda of things to do in this case, what they were looking for?
A They indicated that they wanted me to review the depositions and the job specifications that they sent and asked me if I would give my opinion as to, first of all, whether I could calculate or estimate a dose of exposure that Mr. Humphreys may have received to Kaylo as well as to the Mundet insulating cement that he used.
Q You've been able to provide us with metrics concerning exposure levels that you received to those products, right?
A That he specifically received?
Q Yeah, assuming of course that he was exposed to Kaylo and exposed to the mud as testified, you've given us metrics as to the amount of fibers per cc from those operations, right? Did I hear that right from your testimony?
A No. I gave you the general exposure levels that have been reported in the literature for insulators during the pre-1965 period and the post-1965 period, but I didn't specifically mean to imply that those were his particular exposure levels to OI Kaylo, if that's

what you're asking.
Q And why is that?
A Because I didn't have enough information in his deposition as far as the job activities that he performed, the number of times that he performed them, and the distance that he was from others who performed similar operations, not only from the insulators that he was providing the product to, mixing the cement for, as well as the distance that he was and how often he was near other contractors that were insulating other types of equipment rather than just piping.
Q You didn't see that testimony in his deposition, in his trial testimony here? You didn't see testimony concerning his cutting of the product, his working around the product, his working with people?
A I saw --
Q Let me finish the question. His working with people that were working with the product, the fact that he was cutting the product in about a foot and a half away while he was cutting it, the fact that he was sweeping up the dust from the product, the fact that he saw that there was dust, the fact that this process -- this summer was about three or so months, the fact that he did this eight hours a day as a

full-time job during that time period, the fact that he worked around other insulators who were doing the same thing, all of that information was not enough for you to give a range of exposures to this product?

A No, because it was not specific as far as frequency and duration as well as distances.

Q Okay. And you've done this sort of thing in other cases, though, have you not?

A I have, where there's been more explicit and more consistent information.

Q What was inconsistent about Mr. Humphreys' testimony?

A Well, for example, he indicated at one point that he mixed the insulating cement or mud, as they called it, anywhere from two to three times an hour, but later he said three to five times a day. And then also in his testimony he said for half a day, so, you know, it was hard to pick how often he actually did the mixing. He was explicit on the duration of mixing. He said it took him about ten to 15 minutes, but as far as how frequent, in other words, how often, I didn't have that information.

And I really didn't have specific information on exactly how long he worked, other than he said he thought he started in late June, possibly early July, and he worked possibly three weeks into

September before he went back to college.
Q You couldn't give us ranges just based on those parameters alone, a low and a high, you couldn't do that?
A No.
Q But you have done that in other cases, haven't you?
A Where it has been explicit; in other words, I mixed the insulating cement two times per hour, took me 15 minutes to do that mixing, and I did that five days a week for 12 weeks, and I did this mixing in this type of environment, or I worked within 20 feet of other insulators that were using similar, not similar products, but they were using insulating products and insulating cement while insulating piping. So I have been able to do that but not in this particular case. It just wasn't consistent enough or explicit enough for me to do that.
Q If you took the low end of everything that you just talked about with respect to Mr. Humphreys' testimony, would that be in your mind a substantial exposure to asbestos, just based on his work at the taconite power plant, all of the different things that he did there?
A Well, I don't know what you're defining as "substantial."

Q You've read his deposition, right?
A Yes.
Q And you have an understanding of all of the avenues and opportunities that he had to be exposed to asbestos, right?
A Yes.
Q And of all of the universe of opportunities for him to be exposed to asbestos, his work at the taconite power plant was the biggest exposure to asbestos he had in his life, right?
A Based on his deposition and the duration of time that he was there, it was certainly a significant source of exposure.
Q All right.

Now, I heard in your direct testimony criticisms of Mr. Templin, and I was scratching my head because I was trying to figure out what was going on there. His MAS studies you criticized, right, not his but MAS's studies?
A I don't think I criticized him. If I did, I apologize to the court, but I criticized the studies. As far as I know, he wasn't involved in those studies and so I certainly wouldn't criticize him.
Q Okay, so the studies are actually less than the numbers that you were giving us for these operations

, aren't they?
A Yes, based on his testimony.
Q Okay. So are you saying that the studies are trying to overstate the exposures, is that what you were trying to say yesterday?
A All I indicated is that when you do simulation studies in a confined space with limited ventilation you're not representing the workplace and what the worker was exposed to. And also, when you use people who have never cut pipe, never handled pipe, or mixed cement, you know, those are skilled people with specialized techniques. Only sampling those people in a real field-type situation in the workplace is going to represent their exposure and not a study done in a confined space by a -- nonskilled people.
Q Understood. And I think that's what he testified to, that these are not trying to replicate work practices in the field but we're trying to understand if we have exposures to asbestos, and at least insofar as that's concerned, these tests give us some information on that, don't they?
A Yes, they show that asbestos can be released when that product is handled in the way that they handled it in their simulation chamber, yes.
Q And the -- but you would prefer to see information

from the literature on actual -- where do you get your numbers? You were talking about, I think you said ten to 15 fibers per cc with the Kaylo, right?

A Not with the Kaylo.

Q With thermal insulation?

A With asbestos-containing thermal insulation product among insulators that were installing those types of products pre-1965.

Q Which is what we're talking about in this case, right?

A Right, um-hum.

Q We're not talking about post-1965?

A Right.

Q So pre-1965, you're saying the literature supports ten to 15 fibers per cc while working with thermal insulation?

A That's correct.

Q And what is the basis of that, what paper are you referring to?

A Most of that is from the Fleischer and Drinker studies of 1946.

Q Anything else?

A There was also a Ferris study.

Q Anything else?

A No.

THE COURT: How do you spell Ferris?

THE WITNESS: F-E-R-R-I-S, I'm sorry.

BY MR. DE BLASE:

Q How about Hodgson and Darnton, have you read that article? H-O-D-G-S-O-N, and Darnton, D-A-R-N-T-O-N.

A I've heard about that. I haven't reviewed that recently, though.

Q This is something that Mr. Templin talked about in his direct testimony. This is a paper that was -- may I publish it, Your Honor?

THE COURT: Any objection?

MR. COSMICH: I don't think he has a foundation for it yet. He hasn't read it.

MR. DE BLASE: Well, he doesn't need to read it. This is a publication that Mr. Templin has talked about and found to be authoritative and reliable.

MR. COSMICH: I don't know that that was established.

MR. DE BLASE: Yes, it was.

THE COURT: The objection is overruled.

BY MR. DE BLASE:

Q All right. We're not going to do this too much. But let's talk about it a little bit. Hodgson Darnton. You know who these researchers are?

A I've heard of them, yes.
Q They're folks that talk about asbestos and exposure. We're not going to talk about this whole article because it's pretty thick, but they actually talked about the insulator cohort that Dr. Selikoff studied. You know what that's all about, right?
A Oh, yes.
Q And that was a large cohort, I think what, 14,000 --
A Yes, thousands.
Q And that cohort which started in the 1960s and is even being studied to this day, is being referred to in this paper. These researchers found insulators -- see that cohort number eight there?
A Yes.
Q That's the U.S.-Canada insulators?
A Yes.
Q And they have provided average cumulative exposure at the top there, you see that, that column, average cumulative exposure, fibers per milliliter year, that's fiber per cc year?
A Right, um-hum.
Q And so that's basically a -- we multiply the numbers of years now to our fiber per cc metric, right?
A Right, um-hum.
Q So for this, in this cohort, that's a big number,

right, 500 fiber per cc years?
A Right.
Q If we look elsewhere in the paper we see that the number of years that they're talking about is 25 years?
A Okay.
Q So from that the conclusion was -- and Mr. Templin testified to this -- was that on average an insulator is really going to be in the neighborhood of 20 fibers per cc, because if we divide 500 by 25 years we get 20 fibers per cc.

Is that within the range of what we're talking about here, ten, 15, 20 fiber per cc years?
A Well, I don't know when that study was done. It's a Canadian insulators. I mean, I don't know what years they're looking at.
Q But they're looking at the cohort. This study was done in 2000, published in 2000. So anyway, does that make a difference when? I mean, are we talking about numbers that, you know -- and it varies, we're not going to get exact science on this because we don't know because nobody was there with the breathing apparatus?
A Right.
Q We're talking about numbers that are ten, 15, 20

fibers per cc for this operation, right?
A Well, that article was. I don't know how that would pertain to those numbers that I gave you. Again, it said Canadian insulators on the -- I'm not familiar with their study.
Q Do Canadian insulators do insulating different than the Americans?
A Well, they could have; I don't know.
Q They do things differently, correct?
A Well, they could have used different products, sure.
Q All right. So --
A And had less controls. I don't really know.
Q When we're talking about exposures and the numbers of fibers per cc an individual might be exposed to, it's variable, right?
A Yes.
Q And a number like 20 fibers per cc doesn't surprise you, does it, for this operation, thermal insulation, the cutting, the cleanup, the sawing, the carrying, those sorts of things?
A Well, it would be an extreme peak in, based on what I've read, as far as American literature and the research. I don't believe the range would get up that high. There certainly could be peaks; for example, mixing insulation can go up as high as a

hundred fibers per cc. I said mixing insulation. I meant mixing insulating cement, so it varies.

Using a band saw can raise the levels, but typically the ten to 15 I think is a better range for at least American insulators during that time period.

Q Okay. All right. So what about these other operations, the brake work that he did, how many brake jobs did he do?

A Well, that varied, too. He first said he did two a year for about seven years. Then he said he did more like ten, and then he said at the end, that maybe he just did six, so it varied.

Q Okay. Well, if we took the top number, two a year for seven years, that's 14 brake jobs?

A Fourteen, right.

Q And then we have a low number of six. Is anything in that range, in your opinion as an industrial hygienist, does that increase one's risk of getting mesothelioma?

A Well, again you're asking a medical question, but you certainly can, depending upon the environment that you're doing the brakes in, and he indicated that with new brakes he would sand them, which brake shoes in that time period contained a lot of asbestos, so when you're sanding your shoes you're getting some

pretty high exposure levels. So depending upon the number that he did, the way he did them, the environment that he was in, he would certainly have significant asbestos exposures while doing brake work.

Q So it's your opinion that brake work gives somebody a significant exposure to asbestos?

A Yes, I think doing brake work with asbestos-containing brake materials, especially scuffing the new brakes, will give you a significant exposure to asbestos.

Q Is it something that increases one's risk of getting the disease?

A If you do it enough and you get a high enough dose, in my opinion -- again, you're asking me to come up with a medical opinion -- but in my opinion, it increases or puts you in a category of people that have an increased risk of developing mesothelioma.

Q Well, what about in Mr. Humphreys' case where we have a maximum of 14 brake jobs?

A Well, if he -- again, I don't know exactly what his exposure level was while he was scuffing those brakes.

Q Let's presume it was the worst?

A He would have a significant exposure while sanding

those brake shoes, there's no question about it.

Q What kind of metrics can we put on that, what kind of fiber per cc metrics?

A We can't because no sampling was done. We don't know how close he was to the brakes. We don't know if he was downwind, upwind. We just don't have enough information to know what his exposure level would have been.

Q Well, he testified that he did the brakes indoors so there wasn't any wind. So let's take that out of the equation, and let's take the worst-case scenario, what kind of fiber per cc exposure did Mr. Humphreys have to brakes?

A I would not have enough information to estimate that. It would vary and it would depend, again, on him sanding the brakes and the environment that he was sanding and how close his mouth was to that particular activity, so I wouldn't be able to put a number on that.

Q Well, let's presume -- let's do a hypothetical. Let's presume that his face was a foot away from the brakes while he was sanding, and he sanded every single one that he did, and in terms of brake work it was the worst possible exposure he could get. What kind of exposure -- what kind of fiber per cc can you

give us for Mr. Humphreys' work on brakes?
A I can't give you an exact number other than to say it was a significant exposure to asbestos.
Q Why can't you give us a number?
A Because I didn't sample that operation, and I don't know the conditions that he performed those activities in.
Q Did you sample this operation?
A No, I didn't sample any of those operations.
Q You gave us numbers there?
A Right.
Q You know what the literature is with respect to brakes and sanding and brushing out the brake dust as he testified, putting in the new brakes. Give us some numbers so we can compare it to his experience at Taconite Harbor?
A The exposure with brakes can be high; it can peak when you're sanding the brakes, but, again, the exact amount of exposure is something you have to determine by actually doing sampling.
Q Is that something that you have ever done?
A Yes, I've sampled the removal and installation of brake shoes.
Q So what kind of fiber per cc numbers did you get when you did that sort of testing?

A Well, I was doing it with controls. We had our employees wearing respirators and wetting down the new brakes as well as the old brakes before they took them off, plus we had local exhaust ventilation, so my levels, my concentrations of exposure that I determined were very low.

Q My question is, do you have any data for us? I mean, you've got literature, do you not, that talk about how many fibers per cc one gets when they sand brakes?

A I haven't seen anything specific to sanding automobile brakes. I mean, the highest levels that I've seen on performing any kind of brake work has been five fibers per cc.

Q You've seen five fibers per cc?

A Yes, but it's a peak exposure.

Q What publication is that?

A I don't remember the particular publication.

Q And that's a peak exposure for a few minutes, 15 minutes, what?

A A short period of time, right.

Q Is it less than 15 minutes?

A Yes.

Q Is that kind of experience the kind of experience one gets when they're constantly exposed like one would

be at the Taconite Harbor all day long?
A Well, even at Taconite Harbor your exposure levels are going to vary with the activity.
Q Sure.
A So it -- all -- most environments at least you'll have a variation of your exposure level depending upon your activity.
THE COURT: We're going to take our morning recess at this time, ladies and gentlemen, 15 minutes. Why don't you put your note pads on your chairs. Don't talk about the case, and we'll see you soon.
(Whereupon, the jury was excused.)
THE COURT: We're on the record. Mr. Glaccum, you may proceed.
MR. GLACCUM: Your Honor, I have what has been marked as Plaintiff's Exhibit -- or sorry -- Exhibit 50A for identification. It's the video deposition of Lona Jensen taken September 25th, 2014, transcript. As the court requested, we have produced it to attach it to the thumb drive which has already been admitted into evidence. At this time we'd request to admit it into evidence.
THE COURT: Is this the redacted version or the unabridged version?

MR. GLACCUM: Unabridged, Your Honor.

THE COURT: All right. And of course Exhibit 50 is the actual video itself with redactions, so if there's ever an appeal, that court can have a full array of materials to review the record.

Is there any objection to the receipt of Exhibit 50A as a court exhibit?

MR. TIERNEY: No objection as a court exhibit, Your Honor.

THE COURT: All right, it's received as a court exhibit.

We'll go off the record and take our break.

(Court stood in recess.)

(Whereupon, the following proceedings were duly had in open court in the presence of the jury:)

THE COURT: Mr. DeBlase, you may continue with your cross-examination.

MR. DE BLASE: Thank you.

BY MR. DE BLASE:

Q Dr. Gregory, this five fibers per cc when you're talking about the worst possible brake exposure you can get, that was a peak exposure, right?

A Yes, it was a peak. In fact, now that I think about it, I've actually seen it as high as eight fibers per

cc.
Q What is that over a time-weighted average?
A Well, it depends upon how many brakes you do, and that study I don't believe indicated that.
Q Well, what about with Mr. Humphreys' case, if he's doing 14 brake jobs total, what kind of time-weighted average fiber per cc number can we get?
A The time-weighted average would be fairly low compared to doing the insulation-type work that he was assisting with, including the mixing of asbestos-containing cement, so it would be low, relatively speaking, compared to --
Q I understand, but we want to give the jurors some tools to equate the two, so what kind of time-weighted average fiber per cc -- by the way, this is a time-weighted average, right?
A Yeah.
Q What kind of time-weighted average fiber per cc number can we give to Mr. Humphreys' experience with brakes?
A I can't give one, because I don't know how long it took him to do the brakes, how many he did under the circumstances that he performed the brake job. You know, it's just too many variables that would have to go into that equation for me to try to give any kind

of estimate of what his exposure was, other than to say it was less than what his exposure would have been during the insulation activities that he described.

Q Are we talking about a number that starts with a zero and a decimal point, at least that much, can we figure that much out?

A No, I can't say that either. Again, it's something that you have to monitor to determine. I mean, it's going to be above the range of from maybe .01 to up to maybe one-and-a-half, maybe over an eight-hour average, but it's going to be low, again, compared to insulation-related activities, particularly the mixing of asbestos-containing cements.

Q But we just don't have enough information to make any determination at all as to that?

A That's correct.

Q What about the joint compound, same thing?

A The same thing is true there because he wasn't a Drywaller, so he was just patching cracks and nailing holes in a house that he had bought, so he was working intermittently, both mixing the joint compound and sanding the joint compound.

So I don't know the size of the rooms that he was doing these things in or how close he was

while he was doing the sanding, as well as the mixing of the joint compound. So his exposure level would have varied.

Q Can you give us some information that is in the literature concerning joint compound exposures?

A Yes. The time-weighted average for a Drywaller, that I'm aware of, that I think is one of the more recent ones that was published -- I just can't remember the name of the author, although I think it was Murdock -- but the time-weighted average for Drywallers that included installing the Drywall, mixing the joint compound and then sanding the joint compound, the time-weighted average there ranged up to five-and-a-half fibers per cc, I believe it was.

Q And that obviously is a professional Drywaller, right?

A That's correct.

Q Not a person doing random patch jobs for a few minutes, a few hours?

A That's correct.

Q Whatever the testimony is in this case, right?

A That's right.

Q That exposure, in your opinion, is significantly less than his experience at Taconite Harbor?

A The exposure that he had as patching holes and

patching cracks or the exposure that a Drywaller would have?

Q His exposure of patching holes, patching cracks.

A Yes, his exposure during the mixing of the asbestos-containing joint compound would have been similar to the mixing of asbestos-containing insulating cements, although I would suspect significantly lower, but you're mixing a dry powder material that has a tendency to disperse into the air easily, but in general, his operation of sanding, mixing would have been lower -- mixing of joint compound, sanding of joint compounds -- his total exposure there would have been less than his exposure during the same time period for the same duration of while he was working as an insulator, or as an insulator helper, excuse me.

Q We went through some of the information that's in the literature that Mr. Templin talked about in this case. The numbers that you're giving are lower than the numbers that he gave for the literature, the scientific literature with respect to those operations, is that right?

A Yes, but, I mean, he may be aware of some other research or some other presentations that I'm not aware of.

Q And the exposures to the joint compound, that's all chrysotile, right?
A Yes.
Q And that's in contrast to the Kaylo product which had a component of amosite in it, right?
A During that time period from 1956 to '58, it's my understanding that Owens-Illinois Kaylo did contain some amosite in addition to chrysotile.
Q And we heard Charlie Ay's testimony on that and we've seen some interrogatory responses on that. I don't think that's in dispute. Do you have an understanding as to the difference in toxicity, if you will, between the fiber types chrysotile and amosite?
A Yes. The general consensus is that amosite is a more potent, more potentially toxic form of asbestos as compared to chrysotile in causing an increased risk of mesothelioma.
Q Can you quantify that?
A Well, there's been all types of factors that have been used for that, so -- none of it has been scientifically validated, so I'm not comfortable to even give a range. All I know is the epidemiological studies have indicated that amosite is potentially more toxic than chrysotile, and crocidolite is more

toxic, potentially toxic, than amosite.
Q All right. And crocidolite is not a fiber that's in play in this case?
A As far as we know, that's correct.
Q Let's briefly go over what we talked about yesterday. I have my notes here. By the way, you respect Charlie Ay and what he has to say about his experience with insulating materials, right?
A Yes, I've read his depositions in the past as well.
Q You yourself were never an insulator, right?
A No.
Q You never applied insulation or worked with it, correct?
A No, but I've worked with raw asbestos as a high school kid.
Q But my question was as to insulation.
A No.
Q Now, as far as insulation of, thermal insulation, Charlie Ay would be the best person to talk to us about that, right?
A Since he was an insulator who installed thermal insulation, he would be more qualified to talk about the techniques of installation of thermal insulation and not me because I was never an insulator, that's correct.

Q And what these things look like, too, right?
A He was knowledgeable. He used them in the field while they were being installed rather than being removed.
Q And you said in your testimony yesterday Kaylo is white, very, very chalky white. I think you used the words "very" and "chalky" and "white" like seven times in your answer. That's a little bit in contrast to what Charlie Ay said in this case, because we had the picture of the Kaylo up on the screen, and he testified that the advertising is white but it's not as white as that. It's an off white?
A I think he indicated kind of a pinkish white with a pinkish hew, I believe he indicated.
Q Well, the testimony is what it is.
A Right.
Q We'll talk about that in closing argument. But the testimony that he gave is about the description of the product as something that you would respect, right?
A Yes.
Q You have no reason to dispute Charlie Ay's testimony in this case, do you?
A That's correct.

Q And do you have any -- now, the Mundet mud that Mr. Humphreys has described working with, that, too was a chrysotile product, right?
A Yes, as far as I know, or as far as the literature has indicated, yes.
Q That product did not have amosite in it, right?
A To the best of my knowledge, it did not, but that's based on what I know from the literature.
Q Now, you said -- I didn't think I was going to have to talk about this, but then it changed. You said when you were talking about standards, the ACGIH and other standards, that folks were trying to get the workplace, if they followed these standards, that nearly all employees, you said that, nearly all employees would be safe, or that most people would be safe. But then you said something towards the end that said that -- it was more definitive -- that if you followed these TLVs you would be safe. Is it more that answer or the answer, most people, or nearly all?
A Well, that was our standard. I mean, industrial hygienists really refer to that as their bible to determine whether people were being overexposed or exposed within safe limits. That was the best available scientific information that we had. As a

young compliance officer running around the plants sampling employees and coming back with the results, discussing it with the employees, and they wanted to know, and their employer wanted to know, are my people going to be safe, that's what we used. Of course then it was the permissible exposure levels, PELs that OSHA had adopted from the ACGIH TLVs, but they were essentially the same as the original TLVs although the TLVs changed a little bit. OSHA's changed as well.

Q Let's get back to my question. My question is, those standards, the ones that were not, you know, enforceable by government, the ACGIH standards, and then thereafter the ones that were enforceable by government, the OSHA standards, all of those standards throughout time have never said that following these standards you're going to be safe, have they?

A Yes, they've said that nearly all people exposed below those levels will not suffer adverse health effects.

Q And we've all seen the ACGIH -- I'm not going to put that back on the screen -- from 1948. I'm sure you've seen it, too, from the tenth transactions, right?

A I don't know which one you're referring to.
Q And then thereafter literature in OSHA when they're describing these standards, they're talking about it in terms of even at these standards people are going to get sick, right?
A Well, when OSHA established their PELs they were mandated by Congress and the Supreme Court to promulgate and enforce the most protective health standards that they could promulgate, and they have been tested many times. Like I said, the Supreme Court said you will produce and enforce the most protective standard to prevent material impairment of health for all working Americans.
Q Understood, but let's get back to my question. And that is, that even at that standard for all the world to see when we're talking about what the standard is and what it does and what it purports to do, that even at that standard -- and it's changed over time -- but even at the standard at whatever time, if you expose somebody below that standard, they tell everybody people are still going to get sick, don't they?
A I'm not aware of them saying that other than to say that there are some hypersensitive individuals who, for one reason or another -- maybe it's the

particular medication that they're on, or maybe they smoked cigarettes -- that interferes with the body's defense mechanisms, but some of those people have a challenged system that makes them more susceptible to concentrations of chemicals as opposed to someone who does not have those types of hypersensitivities or weakened autoimmune or defense mechanisms.

Q None of that's a factor in this case, is it?

A I don't know that it is. I'm not a medical expert on that so I can't really give you an opinion.

Q Let's stick with industrial hygiene. Let's talk about what's in the literature, what the standards are, because you talked about that on direct, what the standards are. Let's talk about what that means to folks that are looking at it at the time. At the time of the 1950s, we didn't have OSHA, we're looking at the ACGIH, right?

A That's correct.

Q That wasn't enforceable, nobody could get a ticket for violating the ACGIH standards, they were recommended standards, but even in those standards they said that this is a rough guesstimate pretty much, right?

A No, I don't recall anyone saying it was a rough estimate. And some states did adopt those as

regulations, the TLVs.
Q Understood. Now, when we moved to OSHA, OSHA tells folks that even at this level, even at today's level, .1 fibers per cc, which is extremely low compared to the past, right?
A Yes.
Q Even at .1 fibers per cc, folks will still get cancers?
A Well, what they say is OSHA's acceptable risk is less than one person per thousand that will develop a disease for any of their occupational health standards, and they say that with the current standard, in addition to the permissible exposure limit but all the work-practice requirements that are in that, if all of those are implemented and maintained there will be no significant risk of material impairment of health.
Q Right. They're trying to prevent -- that's what they're trying to do -- they're trying to prevent asbestosis, and they think that that .1 level will prevent asbestosis, right, can we agree on that?
A I don't know how we got on asbestosis. I was talking about asbestos-related diseases including mesothelioma and lung cancer.
Q Let's start with asbestosis. They're trying to

prevent asbestosis at the .1 level, right?
A They're trying to prevent mesothelioma at the .1 level.
Q Can we just start with asbestosis. We'll get to mesothelioma.
A Right.
Q Asbestosis, trying to prevent?
A That would prevent --
Q Prevent asbestosis at .1, right?
A That would prevent it, yes.
Q And OSHA says -- have you read the regs for OSHA?
A Yes, the 1994 was the last regulation, yes.
Q So the regs say right in there that we're trying to prevent asbestosis but this will not prevent excess cancers, does it not say that? You want me to pull it out?
A It says it will reduce cancers to, I believe the exact language is three per thousand. Their target is one per thousand, but the rest of the regulation, the work-practice controls that are also required in a regulation, will bring that risk within one per thousand, and that any significant reduction in the permissible exposure level will not increase the safety to the employee or decrease the risk of material impairment.

Q I just want to make sure I'm clear. At the .1 fiber per cc level, which is today's standard, you're saying that's -- that OSHA believes that that's going to prevent cancers?

A That, in addition to the rest of their work-practice requirements, which are also part of their asbestos standard.

Q Okay. At the time of the 1950s, did folks -- well, I think we've beaten that subject enough. Let's move on.

We talked a little bit -- or you talked a little bit about toxic and nontoxic, the definition -- you were shown some documents. If there was some testimony in this case about what somebody who actually worked at the company, how they defined toxic and nontoxic, is that something that you would consider to be important in terms of understanding what folks were thinking at the company at the time about what the definition of those words means?

A Well, the definition varied a little bit depending upon the individuals. I gave you the general consensus as far as the definition of toxic versus nontoxic.

Q It's a technical kind of thing?

A Right.

Q You're not saying by putting up those documents, that asbestos was considered nontoxic up and through the '70s, you're not saying that it was considered not harmful to health through the 1970s, are you?
A No, I'm just saying that the definition on toxicity changed with time, and during that time it was not considered a toxic mineral dust. It was considered just a mineral dust.
Q According to their defining scheme, right?
A During that time period, that's correct.
Q And we're talking about the '70s, right?
A Before the '70s.
Q Well, for somebody who's an insulator or a customer who's not looking at these documents that you showed the jury, and looking at just the normal definitional sense of the word in the 1950s, that could be different than what you're talking about in terms of toxic, nontoxic, right?
A No, that was the general definition during that time period before it was changed, that toxic referred to systemic materials that were absorbed into the body and it traveled to remote or systemic locations within the body rather than causing harm right at its initial origin or its -- where it initially entered the body.

Q So you're saying that the definition of toxic, at least up through the 1970s, was toxic meant that if it touched your body you'd get an immediate type reaction, versus nontoxic which you'd take it into your body and maybe you'd get hurt a little time later?

A Well, toxic was that it was a systemic material that would travel through your body and then attack or damage target organs, and the mineral dust was a dust that stayed pretty much where it entered. If it entered the lungs, it stayed in the lungs. It wasn't absorbed into the bloodstream; it wasn't carried to other parts of the body, but eventually that definition was changed and the definition became -- a toxic material was any material that could cause damage to the body if it comes in contact with the body or travels through the body.

Q But before that time -- let's get to the bottom of this -- before that time is it your point that while asbestos was considered to be harmful to the body -- you agree with that, asbestos is harmful to the body because it can cause asbestosis and cancer, and folks knew that in the 1950s, right, 1955 and thereafter, right?

A In 1955, with the Richard Doll study, which was a

very well done epidemiological study, that was an indication that overexposure to asbestos could cause lung cancer, that's correct.

Q Right, so that's harmful to the body, right?

A Right.

Q So you're saying that still is somehow not toxic because of some technical definition, just to be fair, right?

A Right, the definition of toxicity at that point was that it had to be a systemic poison. It had to be like arsenic lead, entered the body through the lungs or through the intestinal tract or through the skin and then traveled to other parts of the body. It's just a difference in definition.

Q A difference in defining things?

A Right.

Q So folks in the sciences, you know, might have had this hierarchy of what is toxic and nontoxic, but for the average Joe, let's say, working at Owens-Illinois and the average Joe looking at an advertisement, toxic and nontoxic mean other things, right?

MR. COSMICH: Object; calls for speculation as to what it may mean to somebody else.

THE WITNESS: Yeah.

THE COURT: Witness can answer. Overruled.

THE WITNESS: I wouldn't know how other people, your average Joe, at that time probably would be familiar with the definitions of toxic versus nontoxic.

BY MR. DE BLASE:

Q Exactly. So a fellow working at Owens-Illinois explained to folks what, in a deposition, what was meant by toxic or nontoxic in the 1950s is giving you the straight scoop on what he meant at OI in the 1950s?

A That was his interpretation of what toxicity was at that point, yes.

Q Okay. Let's talk about your work with Eaton, okay. That was the defendant you did work with, that particular defendant was an employer in an asbestos case. Do you remember giving testimony -- let me just ask you a question. Forget about this testimony stuff, this lawyer stuff. Let me just ask a question.

In performing the work for the various companies that you've performed work for, have you specifically come to opinions that the supplier of asbestos material must rely upon the manufacturer to tell them when the product is unsafe?

A That's one source of information, and it's required

by the OSHA Hazard Communication Act since the early 1980s.

Q And that was one source of information in the 1950s as well, right?

A It was not required in the 1950s.

Q Understood. There were no laws requiring them to do anything in the '50s?

A Right.

Q I'm talking about your answer, and that is it's one source of information?

A That's one source of information. There are many other sources of information.

Q And from an industrial-hygiene standpoint, employers have a -- have come to rely upon product suppliers to provide information on product safety, true?

A That's one source of information, sure, one of many but you can't just go on one source. In that particular case the company was given misinformation about the product that they were being supplied.

Q Let's talk about that. So obviously information that is received or put out by the company needs to be accurate, right?

A That's correct.

Q And you believe from an industrial-hygiene standpoint that it would be wrong for a manufacturer to give

misinformation about its product, right?
A That is wrong, yes. Yes, I do agree with that.
Q And when you're giving that opinion, you're giving that opinion not just as a scientist but also as a professional involved in safety, correct?
A That's correct.
Q Because an industrial hygienist is a person who is involved in safety, right?
A Not all of them, but I was because I was certified in safety as well.
Q And from an industrial hygiene and logic standpoint, manufacturers are in the best position to know precisely what materials are contained in the products they produce, right?
A Yes, a manufacturer of a product does know, since they obviously manufacture the product, they know exactly what's in that product.
Q And manufacturers are in the best position to let others know what's in their product?
A Yes, if they sell their product, of course they can tell others what's in their product.
Q And manufacturers are in the best position to test their own product, true?
A They're in the position to test it as well as anyone else could test it. Users can test it. The

universities can test it; the government can test it, of course.

Q You could test it?

A That's right.

Q Manufacturers are in the best position to understand the hazards that are particular to their own product, correct?

A Not really, because the hazard depends upon exposure, and exposure is -- depends upon the usage, in other words, the environment that it's used in, how much you're using, how often you're using it, and the way you're using it, essentially.

Q Is there anything that would prevent a manufacturer from testing all those things that you just said?

A Yes, because I'm not aware of manufacturers who can walk into the job site and put a sampling pump on an employee to monitor their exposure level. Even as an OSHA compliance officer I carried a federal badge and I had trouble getting into some situations with some employers and testing the environment that the employees were exposed to.

Q But a manufacturer could do the best it could to test what it perceived to be the end users' use of the product, couldn't it?

A The employer is in the best position since they

control the people. For example, as an OSHA compliance officer, I ran into several employees who, despite me telling them who I was and why I wanted to monitor their exposure, they didn't want to wear a pump. So I had to go to their bosses and ask them to please ask that employee to wear my sampling pump so I could find out what they're being exposed to.

Q Manufacturers are in the best position to provide information about their product, true?

A As far as the content of their product, they know better than anyone else what the content is, the percentage of different types of material that goes into their products.

Q Manufacturers are in the best position to communicate, right on their own packaging, information about any hazards related to their products that they know?

A Manufacturers can't really communicate hazards because hazards depend upon exposures.

MR. DE BLASE: I'll object as not responsive, Your Honor. It really calls for a yes or no.

THE COURT: Overruled. The next question. He answered your question.

MR. DE BLASE: Got it. Okay.

BY MR. DE BLASE:

Q And from an industrial-hygiene standpoint, one of the ways an end user may receive information about the hazards of a product is by way of information contained on the packaging of that product, true?

A No, because hazard depends upon exposure and working conditions, and you can't indicate that on a package because you don't know how the material is going to be used once you sell it to a user, and you don't know how often it's going to be used, how much of it is going to be used, the environmental conditions under which it's being used. So you really don't know whether or not that's going to be a hazard to the employees of that employer.

Q If a manufacturer has a strong suspicion that a certain disease will result through the normal use of its product, is that something that should be contained on the packaging of the product?

A If a manufacturer knows that their product and the way it's going to be used in the workplace is going to result in a disease to employees, then yes, a manufacturer should put that on the product or on some kind of technical information sheet that goes along with the product if they know that information is accurate. In other words, you use this product,

you're going to get sick.
Q If we're talking about a product that, let's say, doesn't have a track record, is a fairly new product, is a manufacturer in the best position to provide end users information that it actually knows or even suspects about that product?
A No, I think the user is in the best position because they know how much they're going to use, where they're going to use it, how often they're going to use it. All of those constitute exposure, and it's exposures, overexposures that increase the risk of occupational diseases.
Q I think you testified to this before, but a manufacturer obviously is in the best position to let others know and the consumer or the end user know what materials are in the product, right?
A That's correct.
Q And so if a product had a material that was known to cause a specific disease but folks didn't know whether that material was actually in the product, is that something that the manufacturer is in the best position to let the end user know?
A If a manufacturer knows that the use of the product will result in disease, then the manufacturer should tell the employer, but the employer has the

obligation of determining whether or not a potentially hazardous material is actually going to be a hazard to their employees, and that depends on exposure which is duration and frequency of use as well as quantity of use.

Q What is the best way to make sure that any information that a manufacturer wanted to provide about its product to ultimately get to the end user? Is it communicating with the employer, communicating with the distributor, communicating with a number of people, or is it just putting that information on the packaging so that when it's cracked open and used it can be read by the end user?

A Well, again, since a hazard depends upon exposure level, duration frequency of use, how it's used in the workplace, the environment it's used in, in my opinion, the employer has the obligation as soon as they hire someone to make sure they're not using anything that's going to cause adverse health effects to those employees. And they can do that by going to, in those days before the Internet, going to the library and researching that information, or they can contact their suppliers and get that information, or they can contact the local universities, government officials and those types of sources of information.

Q Sure, they could do all that. So the answer to my question is the former, not the latter, right?
A I'm sorry?
Q In other words, the latter is not putting that label on, just going ahead and letting the distributor know, let the employer know about these things, that's the best way?
A No, I'm saying it's the employer's responsibility to find out what their people are using, potential hazards of what they're using, monitor the environment with IH monitoring and determine what their employees are exposed to and if they are overexposed, implement controls immediately.
Q Understood. What's easier in terms of making sure that the hazards of a product end up with an end user, putting something on the packaging of the product, or contacting an employer to let that employer know what the hazards are in the product?
A The most effective means is for the employer to take the responsibility of evaluating their workplace and the chemicals that their employees are working with to determine what their potential hazards might --
Q So an employer should then undertake, when they purchase a product to be used in the workplace, to undertake testing of that product, do destructive

testing of that product, to even first figure out what's in the product, then to determine whether or not that is a hazard to the body, and then do other sorts of testing, that's the best way to go about letting folks know, the end users know, about something that the manufacturer actually knows, is that what you're saying?

A No. The user of a product has the obligation to know what they're using, and when your name is Asbestos Products, Incorporated, you know you're using asbestos. And you need, since you've hired that person, you're paying for their labor, you need to find out what the potential health hazards of asbestos are, and you need to monitor your people and find out that they're not being exposed at excessive levels. And if they are you need to protect them with the various controls that we discussed earlier.

Q You're saying that the manufacturer has no role in that whatsoever?

A I'm saying if the manufacturer knows that a particular use of their product is going to result in a disease or an injury, then that manufacturer does need to contact that end user to let them know if they have that information available. But since they don't know how often and how much of their product

and under what circumstances they're going to be used, they don't know what their exposure level is, you know.

Q So let her rip, right?

A No. I'm just saying if you sell someone a product and they're going to keep it in the box and not use it, there's no exposure. If they're going to use it a few times, there's less exposure. If they're going to be using it constantly, the exposure level is higher. So the manufacturer who controls the people, the conditions, and has all the resources, they have the ability to evaluate that person's exposure and make it safe and make it healthy for that employee.

And I did that as a compliance officer before there were MSDS's. I went to the library -- it's available to anyone -- and looked up the information on chemicals long before any of that information was produced in material safety data sheets to make sure that I was sampling for the right things and monitoring in the right ways to ensure that those employees were not overexposed in the workplace.

Q Thank you very much, doctor.

A You're welcome. Thank you.

THE COURT: Redirect?

REDIRECT EXAMINATION

BY MR. COSMICH:

Q Dr. Gregory, briefly, when you put the -- you gave us ranges of exposure for thermal insulation. That was not specific to Kaylo, was it?

A No, that was not.

Q In fact, these activities that were studied involved thermal insulations, it involved more asbestos than Kaylo?

A That's correct, and those were not eight-hour averages. Those were concentrations during the actual handling of asbestos and not what their eight-hour average was.

Q You were asked about products with a track record. Would you agree that prior to 1948 there was a track record for asbestos?

A Oh, yes, there was.

Q And folks before 1948, when Kaylo was commercially produced and sold, there was a track record for how to control exposures to asbestos?

A Yes, there was, the engineering controls that I discussed earlier.

MR. COSMICH: That's all I have for you, Dr. Gregory. Thank you.

THE WITNESS: Thank you.

THE COURT: Mr. DeBlase?

MR. DE BLASE: Yes, Your Honor.

RECROSS EXAMINATION

BY MR. DE BLASE:

Q The time-weighted average that we're talking about, I think you said this, but with respect to the joint compound, that in your mind is a significant -- you won't put a metric on it but it's significantly substantially less than in Mr. Humphreys' experience at Taconite Harbor, right?

A Right. During the time period that he was an insulator helper his exposure levels would have been higher than when he was sanding joint compound that had contained asbestos.

Q And we talked about a track record for a product. The Kaylo product, do you understand the history of the Kaylo product?

A Well, I mean, from the litigation activity that I've been involved with, I understand a lot of it, yes.

Q Okay. So that was a new product that they were manufacturing, right?

A It was a new product to them, but asbestos-containing insulation had been around many, many years before they started producing it.

Q Understood. But that product was new to

Owens-Illinois, thermal insulation was new to Owens-Illinois, right?

A That's correct.

Q And thermal insulation, the way they manufactured it so it would be nice and light, calcium silicate with asbestos, that was new to Owens-Illinois and it was a brand new product, right?

A Yes, that's my understanding.

Q And so that information is information that would have been beneficial, the results of any testing that they did would be beneficial to folks who are end users, employers, would it not?

A No. I think anyone that was using insulation products knew it contained asbestos and knew that -- or not all of them knew that there were TLVs that dealt with permissible exposure levels to asbestos, but in that time period I know, based on all the depositions that I've read of insulators, they all knew that they were using asbestos, and most of them were members of the Asbestos Workers Union. So they had knowledge that they were using asbestos.

Q Well, we have a new product though that's being tested for adverse health effects by a company spending money to do these tests. They're not doing it because it's already known, right?

A Well, they were testing their product, but the asbestos that was used in it had been tested many, many times before, so there was no new information that they were going to obtain by testing as far as asbestos was related.
Q Who tested this product before?
A Well, all the epidemiology studies that have been done on exposures to asbestos and the fact that it caused asbestosis beginning way back in 1930.
Q Okay, you're talking about asbestos, you're not talking about a specific product, right?
A I'm talking about asbestos. Asbestos was contained in the Kaylo product.
Q Are you aware of any product that was actually tested, or is this the first one that you're aware of, this Owens-Illinois Kaylo, that was tested and you got results from?
A I don't know if there were other tests performed on calcium silicate or other forms of asbestos-containing insulation. I don't know if any of those studies were done as far as animal testing or anything like that, but certainly from 1930 on up epidemiology studies were performed on people that were working with asbestos.
Q Well, wouldn't it be beneficial to folks, to

employers, who may have been confused about the constituency of a particular product, to have that information, that testing result?

A I think every insulation contractor in the country knew they were using asbestos during that time period.

Q Let me ask you a question: With regards from an industrial hygienist's point of view, you believe that employers were confused about asbestos and the asbestos standards as it applied to them until the late 1970s, true?

MR. COSMICH: Objection, beyond the scope of the redirect?

THE COURT: Overruled.

THE WITNESS: I'm sorry.

BY MR. DE BLASE:

Q I'll read it again. With regards from an industrial hygienist's point of view, you believe that employers were confused about asbestos and the asbestos standards as it applied to them until the late 1970s, true?

A Yes, because employers didn't know whether they had to implement certain parts of the standard. For example, medical monitoring was never defined until the later '70s, and the original standard in 1970

just listed a PEL -- 1971 was the first standard -- listed a PEL. 1972 required that you do monitoring for asbestos, but it didn't indicate whether you did monitoring if you used asbestos once a year or if it was just in the workplace, or when you had to do monitoring. Later on OSHA defined that and said that anyone using asbestos where it could possibly be released into the air had to do initial monitoring to find out what their employees were exposed to to ensure that their levels were within the OSHA permissible exposure limits. That was the confusing issue, and I was one of the ones going around trying to straighten that out with a lot of the manufacturers.

MR. DE BLASE: That's all I have. Thank you, Your Honor.

THE COURT: Anything further?

MR. COSMICH: Nothing further, Your Honor.

THE COURT: All right, Dr. Gregory, you can step down. Thank you.

THE WITNESS: You're welcome.

MR. COSMICH: May I consult with Mr. Tierney real quick, Your Honor?

THE COURT: Sure.

MR. COSMICH: Your Honor, the defense

rests.

THE COURT: All right, any rebuttal?

MR. DE BLASE: No, Your Honor.

THE COURT: All right, want to approach?

(Off-the-record discussion.)

THE COURT: Ladies and gentlemen of the jury, both sides have rested so we've completed the evidence phase of the case. Because of preparations that we need to make in order to smoothly present the case to you, including the final drafting of the instructions that you're going to be given, you're getting this afternoon off. That means the case will be submitted to you first thing Monday morning.

So leave your note pads here. Remember all the instructions I've given you about your conduct. It's always important that you follow those instructions. It's even more important now because we'd hate to have to start over. So please follow all the instructions that the court has given you and enjoy your weekend. Don't forget your juror badges on Monday.

(Court stood in recess.)

CERTIFICATE

I, Kathleen M. Conlee, one of the Official court reporters in and for the District Court of the Second Judicial District, State of Minnesota, do hereby certify that the foregoing transcript constitutes a full, true and correct record of the proceedings had in the matter of State of Minnesota versus Neil Humphreys, Lona Jensen, individually and as husband and wife vs. Owens-Illinois, Inc., as taken at the time and place stated herein.

Dated: November 12, 2014

/s/ Kathleen M. Conlee
_____
Kathleen M. Conlee
Official Court Reporter
15 West Kellogg Boulevard - #1530
St. Paul, MN 55102
(651) 266-9191